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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/554,286	10/25/2005	Friedrich Linhart	278601US0PCT	3259
22850 7590 07/15/2010 OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, L.L.P. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER WALTERS JR, ROBERT S				
ART UNIT 1711		PAPER NUMBER		
NOTIFICATION DATE 07/15/2010		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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### Office Action Summary

**Application No.**

10/554,286

**Applicant(s)**

LINHART ET AL.

**Examiner**

ROBERT S. WALTERS JR

**Art Unit**

1711

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 March 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4, 6, 7, 9-18 and 22-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-4, 6, 7, 9-18 and 22-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB-06)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Status of Application***

Claims 1-4, 6, 7, 9-18 and 22-24 are pending and presented for examination.

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/9/2010 has been entered.

### ***Response to Arguments***

Applicant's arguments, see amendment, filed 3/9/2010, with respect to the rejections over Momma, Dyllick-Brenzinger and Smigo have been fully considered and are persuasive. The rejections over these references have been withdrawn.

Applicant's arguments filed 3/9/2010, with respect to the rejections over Blum have been fully considered but they are not persuasive. The applicant first argues that Blum teaches away from a hydrolyzed homopolymer of N-vinylformamide having a degree of hydrolysis of 50-100%. However, it should be noted that Blum also teaches that partial or complete hydrolysis is preferred (0052). Furthermore, a teaching of a preferable range does not necessarily constitute a teaching away from the claimed range. Note that disclosed examples and preferred embodiments

do not constitute a teaching away from a broader disclosure or nonpreferred embodiments. *In re Susi*, 440 F.2d 442, 169 USPQ 423 (CCPA 1971).

The applicant further argues a showing of superior properties from their claimed invention. However, comparing invention polyelectrolyte IX (90% hydrolysis and charge density of 20.4, specification at page 7) with comparative example polyelectrolyte IV (10% hydrolysis and charge density of 1.5, specification at page 7) appears to show very similar results (see specification at Table 1, page 9). Without quantitative data to compare the examples it is hard to conclude that the claimed invention necessarily shows a non-obvious superior property. Without further evidence, the examiner maintains that the claims are obvious over Blum or Blum in view of Dyllick-Brenzinger and Smigo.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-3, 6, 7, 9-18 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blum et al. (U.S. PGPUB No. 2004/0154764).

I. Regarding claims 1-3, 6, 7, 9, 10, 16-18 and 22-24, Blum teaches a process comprising treating a paper with an aqueous solution comprising only a hydrolyzed homopolymer of N-vinylformamide, wherein the composition is applied in an amount of 2 g/m<sup>2</sup> (0069, 0118-0119 and 0139). Blum further teaches hydrolyzing the homopolymer to provide varying degrees of hydrolysis and imparting more or less cationic character to the polymer (0070). Blum further teaches applying the coating by a size press (0080), and an ink-jet paper obtained by the process (abstract and 0111). Blum fails to teach the polymer having a charge density or degree of hydrolysis as is claimed.

However, Blum does teach hydrolyzing the homopolymer to provide varying degrees of hydrolysis and imparting more or less cationic character to the polymer (0070). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention that

adjusting the cationic character of the polymer would alter the solubility of the polymer, and its interaction with the paper fibers. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed range for charge density and hydrolysis through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

II. Regarding claims 4, 11 and 12, Blum teaches all the limitations of claim 1, but fails to teach the polymer having the molecular mass as is claimed. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that adjusting the molecular mass of the polymer would adjust the viscosity of the polymer and also its coatability. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed range for molecular mass through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

III. Regarding claims 13-15, Blum teaches all the limitations of claim 1, but fails to teach the viscosity of the aqueous solution. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that the viscosity of the solution would alter the ability of the solution to infiltrate the paper as well as the ability of the solution to be coated. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose

the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

2. Claims 1-4, 6, 7, 9-18 and 22-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Blum in view of Dyllick-Brenzinger et al. (U.S. Pat. No. 6132558) and Smigo et al. (U.S. Pat. No. 5281307).

I. Regarding claims 1-4, 6, 7, 9-12, 16-18 and 22-24, Blum teaches a process comprising treating a paper with an aqueous solution comprising only a hydrolyzed homopolymer of N-vinylformamide, wherein the composition is applied in an amount of 2 g/m<sup>2</sup> (0069, 0118-0119 and 0139). Blum further teaches hydrolyzing the homopolymer to provide varying degrees of hydrolysis and imparting more or less cationic character to the polymer (0070). Blum further teaches applying the coating by a size press (0080), and an ink-jet paper obtained by the process (abstract and 0111). Blum fails to teach the polymer having a charge density, molecular weight or degree of hydrolysis as is claimed.

First, Blum teaches that partial or complete hydrolysis is preferred (0052). Furthermore, it would have been obvious to one of ordinary skill in the art at the time of the invention that the degree of hydrolysis would affect the cationic character of the polymer and the resulting qualities of the paper coated with the polymer. Therefore, would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges for hydrolysis through process optimization, since it has been held that where the general conditions of a claim

are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

Second, Dyllick-Brenzinger teaches the use of cationic polymers comprising vinyl amine units with a molar mass of 5000 to 3 million (see claim 1), where the cationic polymers are partially or completely hydrolyzed polymers of N-vinylformamide having a charge density of from 4-18 meq/g (see claim 8 and column 5, lines 63-64), and are used as additives that increase the drainage rate of pulp in the papermaking process (see Tables 1-3). The polymers having a charge density of greater than 3 meq/g dramatically decrease the drainage time of the pulp (see Table 2, Comp Ex 1.1 with a charge density of only 1.7 as compared to Ex 1c with the addition of a polyvinylamine containing polymer having a charge density of 16.5 meq/g), therefore one of ordinary skill in the art at the time of the invention would expect that they are imparting an enhanced water resistance to the pulp fibers thereby pushing water away from the pulp.

Smigo teaches that various additives, such as drainage agents are applied to pulp slurries in paper fabrication (column 1, lines 29-34) and that these agents are also commonly added at the dry-end of the papermaking process to penetrate the fabricated paper by size press addition (column 1, lines 55-58).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Blum's method by using the homopolymers of N-vinylformamide having the claimed molecular mass and specified charge density of from 4 to 18, as is taught by Dyllick-Brenzinger. One would have been motivated to make this modification as Smigo actually teaches that conventional additives utilized during the processing of the pulp are also often coated on the paper at the end of the papermaking process. Further, one of ordinary skill in the



art at the time of the invention could have utilized Dyllick-Brenzinger's polymers having a specified charge density with a reasonable expectation of success (given the similarities between Blum's polymers and Dyllick-Brenzinger's polymers, as well as Smigo's teaching that drainage agents are often utilized to coat finished paper products) and the predictable result of providing a paper product having extreme whiteness and also water resistance.

II. Regarding claims 13-15, Blum in view of Dyllick-Brenzinger and Smigo teach all the limitations of claim 1, but fail to teach the viscosity of the aqueous solution. However, it would have been obvious to one of ordinary skill in the art at the time of the invention that the viscosity of the solution would alter the ability of the solution to infiltrate the paper as well as the ability of the solution to be coated. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to choose the instantly claimed ranges through process optimization, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. See In re Boesch, 205 USPQ 215 (CCPA 1980).

### ***Conclusion***

Claims 1-4, 6, 7, 9-18 and 22-24 are pending.

Claims 1-4, 6, 7, 9-18 and 22-24 are rejected.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ROBERT S. WALTERS JR whose telephone number is

(571)270-5351. The examiner can normally be reached on Monday-Thursday, 9:00am to 7:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571)272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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1711

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July 9, 2010  
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